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AMENDMENTS TO THE CLAIMS

1. (CANCELLED)

2. (PREVIOUSLY PRESENTED) The method of claim 9, wherein adding magnesium hydroxide to the water comprises adding magnesium oxide, which converts to magnesium hydroxide upon contact with the water.

3. (ORIGINAL) The method of claim 2, wherein the magnesium oxide comprises reactive magnesium oxide.-

4. (PREVIOUSLY PRESENTED) The method of claim 9, wherein a sufficient amount of magnesium hydroxide is added to the water to reduce the concentration of arsenic to below an acceptable level of 10 ppb.

5. (PREVIOUSLY PRESENTED) The method of claim 4, wherein a sufficient amount of magnesium hydroxide is added to the water to reduce the concentration of arsenic to below an acceptable level of 2 ppb.

6. (PREVIOUSLY PRESENTED) The method of claim 9, wherein the water comprises wastewater from an industrial process.

7. (PREVIOUSLY PRESENTED) The method of claim 9, wherein the water comprises potable water.

8. (PREVIOUSLY PRESENTED) The method of claim 9, wherein the magnesium hydroxide is used in a form selected from the group consisting of a suspension, a slurry, a powder, and a particulate.

9. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the magnesium hydroxide has a median particle size less than 3 microns

10. (ORIGINAL) The method of claim 9, wherein the magnesium hydroxide has a median particle size of 0.5-1 microns.

11. (PREVIOUSLY PRESENTED) The method of claim 9, wherein the magnesium hydroxide is used in the form of a powder having a surface area of 7-13 m^2/gram.

12. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the step of adding magnesium hydroxide to the water comprises using a injector selected from the group consisting of a powder injector and a suspension injector to inject the magnesium hydroxide into a flowing stream of the water.

13. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the step of adsorbing arsenic on the magnesium hydroxide comprises maintaining the magnesium hydroxide in contact with the arsenic contaminated water for less than approximately one hour.

14. (PREVIOUSLY PRESENTED) The method of claim 13, wherein the step of adsorbing arsenic on the magnesium hydroxide comprises maintaining the magnesium hydroxide in contact with the arsenic contaminated water for less than approximately thirty minutes.

15. (PREVIOUSLY PRESENTED) The method of claim 14, wherein the step of adsorbing arsenic on the magnesium hydroxide comprises maintaining the magnesium hydroxide in contact with the arsenic contaminated water for approximately 2 minutes.

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16. (PREVIOUSLY PRESENTED) The method of claim 13, wherein the step of adsorbing arsenic on the magnesium hydroxide comprises stirring the mixture of water and magnesium hydroxide to keep the magnesium hydroxide in suspension for a period of time sufficient to adsorb a sufficient amount of arsenic.

17. (ORIGINAL) The method of claim 2, wherein adding magnesium hydroxide to the water comprises adding 0.001-10 grams of MgO to each liter of water to be treated.

18. (PREVIOUSLY PRESENTED) The method of claim 9, wherein adding magnesium hydroxide to the water comprises adding 0.001-10 grams of $Mg(OH)_2$ to each liter of water to be treated.

19. (ORIGINAL) The method of claim 17, wherein adding magnesium hydroxide to the water comprises adding 0.1-0.5 grams of MgO to each liter of water to be treated.

20. (ORIGINAL) The method of claim 18, wherein adding magnesium hydroxide to the water comprises adding 0.1-0.5 grams of $Mg(OH)_2$ to each liter of water to be treated.

21.(PREVIOUSLY PRESENTED) The method of claim 39, wherein separating the magnesium hydroxide with adsorbed arsenic from the water comprises using a separation method selected from the group consisting of settling, skimming, vacuuming, draining, dissolved air flotation, vortex separating, centrifuging, and a combination of two or more of the foregoing.

22. (PREVIOUSLY PRESENTED) The method of claim 21, wherein the separation method comprises settling using a flocculating agent to aid the settling process.

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23. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the magnesium hydroxide is coated on the surface of a carrier particle.

24. (PREVIOUSLY PRESENTED) The method of claim 23, wherein the carrier particle is lighter than water.

25. (PREVIOUSLY PRESENTED) The method of claim 24, wherein the carrier particle comprises a particle selected from the group consisting of a plastic microsphere and a polystyrene microsphere.

26. (ORIGINAL) The method of claim 23, wherein the carrier particle is heavier than water.

27. (PREVIOUSLY PRESENTED) The method of claim 26, wherein the carrier particle comprises a particle selected from the group consisting of a sand particle and a glass microsphere.

28. (PREVIOUSLY PRESENTED) The method of claim 23, wherein the carrier particle is magnetic.

29. (ORIGINAL) The method of claim 28, further comprising magnetically separating the magnetic carrier particle from the water.

30. (PREVIOUSLY PRESENTED) The method of claim 9, further comprising adjusting the pH of the water after separating and removing the magnesium hydroxide with adsorbed arsenic from the water.

31. (CANCELLED)

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32. (PREVIOUSLY PRESENTED) The method of claim 39,

wherein the $Mg(OH)_2$ is permitted to adsorb arsenic for a period of time;

wherein the period of time is greater than 2 minutes, which is sufficiently long to allow a sufficient amount of the arsenic to adsorb to $Mg(OH)_2$; and

wherein the period of time is less than 1 hour, which is sufficiently short to prevent significant release of the arsenic from the $Mg(OH)_2$ with adsorbed arsenic, due to conversion of $Mg(OH)_2$ to $MgCO_3$ by the carbonate in the water.

33. (CANCELLED)

34. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the step of adsorbing arsenic on the magnesium hydroxide comprises increasing the pH level to decrease the rate of formation of $MgCO_3$.

35. (PREVIOUSLY PRESENTED) The method of claim 39, further comprising the step of adding an inhibitor to inhibit conversion of magnesium hydroxide to magnesium carbonate.

36. (PREVIOUSLY PRESENTED) The method of claim 35, wherein the inhibitor comprises a reagent selected from the group consisting of CaO and NaOH.

37. (ORIGINAL) The method of claim 35, wherein the inhibitor increases the pH of the water.

38. (CANCELLED)

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39. (PREVIOUSLY PRESENTED) A continuous process for reducing the concentration of arsenic in water to below an acceptable level and for recycling magnesium, comprising:

a) adding magnesium hydroxide to the water;

b) adsorbing arsenic on the magnesium hydroxide;

c) separating and removing from the water the magnesium hydroxide with adsorbed arsenic, thereby reducing the concentration of arsenic in the water to below the acceptable level;

d) making an aqueous solution comprising the magnesium hydroxide with adsorbed arsenic removed in step c);

e) converting the magnesium hydroxide with adsorbed arsenic to magnesium carbonate, whereupon free arsenic is released into the solution;

f) separating and removing the magnesium carbonate from the solution;

g) heating the magnesium carbonate to produce carbon dioxide and purified magnesium oxide; and

h) providing the purified magnesium oxide produced in step g) to step a), whereby the magnesium is recycled.

40. (PREVIOUSLY PRESENTED) The method of claim 39, wherein converting the magnesium hydroxide to magnesium carbonate in step e) comprises exposing the magnesium hydroxide with adsorbed arsenic to an aqueous solution comprising a reagent selected from the group consisting of sodium carbonate, sodium bicarbonate, potassium carbonate and potassium bicarbonate.

41. (ORIGINAL) The method of claim 39, wherein the magnesium carbonate is heated in step g) to at least about 400 C.

42. (ORIGINAL) The method of claim 39, further comprising converting the produced magnesium oxide to a powder of a desired size in-between step g) and h).

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43. (ORIGINAL) The method of claim 39, further comprising, after step e), removing arsenic from the solution comprising free arsenic, whereby purified arsenic is produced.

44. (CANCELLED)

45. (CANCELLED)

46. (PREVIOUSLY PRESENTED) A method of concentrating arsenic from a sample of arsenic contaminated water, comprising:

a) adding magnesium hydroxide to a first sample of the arsenic contaminated water;

b) adsorbing arsenic on the magnesium hydroxide;

c) separating and removing from the first sample the magnesium hydroxide with adsorbed arsenic;

d) adding the magnesium hydroxide with adsorbed arsenic removed in step c) to a second sample of water, wherein the volume of liquid in the second sample is substantially less than the volume of liquid in the first sample; and

e) converting the magnesium hydroxide with adsorbed arsenic in the second sample to magnesium carbonate, whereupon free arsenic is released into solution; whereby the concentration of free arsenic in the second sample is concentrated relative to the first sample by the ratio of the volume of liquid in the first sample divided by the volume of liquid in the second sample.

47. (PREVIOUSLY PRESENTED) The method of claim 46, wherein the ratio of the volume of liquid in the first sample divided by the volume of liquid in the second sample is greater than or equal to 10.

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48. (PREVIOUSLY PRESENTED) The method of claim 46, further comprising measuring the concentration of arsenic in the second sample, and then dividing by the ratio of the volume of liquid in the first sample divided by the volume of liquid in the second sample, to produce the true concentration of arsenic in the first sample.

49. (ORIGINAL) The method of claim 46, wherein step e) comprises adding to the second sample a carbonate reagent selected from the group consisting of sodium carbonate, sodium bicarbonate, potassium carbonate and potassium bicarbonate.

50. (PREVIOUSLY PRESENTED) The method of claim 12, wherein adding magnesium hydroxide to the water comprises adding magnesium oxide, which converts to magnesium hydroxide upon contact with the water.

51. (PREVIOUSLY PRESENTED) The method of claim 13, wherein adding magnesium hydroxide to the water comprises adding magnesium oxide, which converts to magnesium hydroxide upon contact with the water.

52. (PREVIOUSLY PRESENTED) The method of claim 21, wherein adding magnesium hydroxide to the water comprises adding magnesium oxide, which converts to magnesium hydroxide upon contact with the water.

53. (PREVIOUSLY PRESENTED) The method of claim 23, wherein adding magnesium hydroxide to the water comprises adding magnesium oxide, which converts to magnesium hydroxide upon contact with the water.

54. (PREVIOUSLY PRESENTED) The method of claim 39, wherein adding magnesium hydroxide to the water comprises adding magnesium oxide, which converts to magnesium hydroxide upon contact with the water.

55. (CANCELLED)

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56. (PREVIOUSLY PRESENTED) The method of claim 39, wherein adding magnesium hydroxide to the water comprises adding magnesium oxide, which converts to magnesium hydroxide upon contact with the water.

57. (PREVIOUSLY PRESENTED) The method of claim 46, wherein adding magnesium hydroxide to the water comprises adding magnesium oxide, which converts to magnesium hydroxide upon contact with the water.

58. (PREVIOUSLY PRESENTED) The method of claim 46, wherein the second sample of water comprises essentially no arsenic.

59. (PREVIOUSLY PRESENTED) A method of concentrating arsenic from a sample of water contaminated with arsenic and at least one other impurity, comprising:

a) adding magnesium hydroxide to a first sample of the contaminated water;

b) adsorbing arsenic on the magnesium hydroxide;

c) separating and removing from the first sample the magnesium hydroxide with adsorbed arsenic;

d) adding the magnesium hydroxide with adsorbed arsenic removed in step c) to a second sample of water, wherein the volume of liquid in the second sample is substantially less than the volume of liquid in the first sample, and wherein the water in the second sample consists of essentially pure water without arsenic or other impurities; and

e) converting the magnesium hydroxide with adsorbed arsenic in the second sample to magnesium carbonate;

whereupon free arsenic is released into solution;

whereby the concentration of free arsenic in the second sample is concentrated relative to the first sample by the ratio of the volume of liquid in the first sample divided by the volume of liquid in the second sample;

and further wherein the at least one impurity in the first sample is not transferred to the second sample.

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60. (PREVIOUSLY PRESENTED) The method of claim 59, wherein the ratio of the volume of liquid in the first sample divided by the volume of liquid in the second sample is greater than or equal to 10.

61. (PREVIOUSLY PRESENTED) The method of claim 59, further comprising measuring the concentration of arsenic in the second sample, and then dividing by the ratio of the volume of liquid in the first sample divided by the volume of liquid in the second sample, to produce the true concentration of arsenic in the first sample.

62. (PREVIOUSLY PRESENTED) The method of claim 59, wherein step e) comprises adding to the second sample a carbonate reagent selected from the group consisting of sodium carbonate, sodium bicarbonate, potassium carbonate and potassium bicarbonate.

63. (PREVIOUSLY PRESENTED) The method of claim 59, wherein the water in the second sample of water is distilled water.

64. (PREVIOUSLY PRESENTED) The method of claim 59, wherein adding magnesium hydroxide to the water comprises adding magnesium oxide, which converts to magnesium hydroxide upon contact with the water.

65. (PREVIOUSLY PRESENTED) The method of claim 61, wherein measuring the concentration of arsenic in the second sample comprises performing ion-coupled plasma mass spectrometry on the second sample.

66. (PREVIOUSLY PRESENTED) The method of claim 32, wherein the period of time is less than 30 minutes.

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